

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:

evaluating a degree of importance of each line segment of said framework;

removing at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

determining a position of a vertex after said unnecessary line segment is removed,

wherein said framework is drawn on a display apparatus.

2. The method of claim 1, wherein said image data defines a 3-dimensional polygonal framework.

3. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

4. The method of claim 3, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

5. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

6. The method of claim 5,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

7. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

8. The method of claim 7, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

9. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

10. The method of claim 9, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

11. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

12. The method of claim 11, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

13. The method of claim 1, wherein if two or more line segments are assigned an identical degree of importance, said method further comprises assigning a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

14. The method of claim 1, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; and determining a position of a vertex after said unnecessary line segment is removed.

15. (Amended) The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which [an amount of] said image data is changed by removal of a particular line segment.

16. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

17. The method of claim 16, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

18. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

19. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

20. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

21. The method of claim 1, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

22. The method of claim 1, further comprising, generating an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

23. (Amended) The method of claim 22, wherein said generating an intermediate framework comprises locating a vertex at [an] a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

24. The method of claim 23, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

25. The method of claim 1, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

26. The method of claim 1, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

27. The method of claim 1, further comprising reconfiguring said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said step of determining a position of a vertex.

28. The method of claim 27, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

29. The method of claim 1, wherein said evaluating a degree of said line segment is performed on the basis of a removal importance value of the line segment obtained from a change amount of said image data caused by the removing of said line segment and on the basis of an assigned importance value of the line segment assigned by a user.

30. The method of claim 29, wherein said evaluating a degree of importance of the line segment decides that the degree of importance of said line segment is small, if said removal importance value and said assigned importance value are both small.

31. The method of claim 29, wherein said assigned importance value is a removing order of said line segments.

32. The method of claim 17, wherein said specifying the at least one line segment as of high importance is performed by a user.

33. The method of claim 17, wherein said specifying the at least one line segment as of high importance specifies a portion where more than two image data are adjacent.

34. The method of claim 18, wherein when the shape of the portion that includes said unnecessary line segment is a concave or convex shape, said vertex is positioned where said total loss of area is minimized.

35. The method of claim 19, wherein when the shape of the portion where said unnecessary line segment is a S-character shape, said vertex is arranged at a position where a loss of area between said original framework and said reconfigured framework is equal on both sides of said vertex.

36. The method of claim 1, wherein said determining a position of said vertex determines the vertex at a position of one of the vertices of the removal line segment.

37. The method of claim 1, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment.

38. The method of claim 1, further comprising, generating a framework at an intermediate layer between an original framework which is the polygonal framework before said unnecessary line segment is removed and a reconfigured framework which is the polygonal framework after said unnecessary line segment is removed by determining a position of vertices in the intermediate layer on the basis of the relation of the position of said vertices between said original framework and said reconfigured framework.

39. The method of claim 38, said position of said vertices at said intermediate layer is determined by the interpolation of said position of said vertices in said original framework and said reconfigured framework.

40. The method of claim 39, said interpolation is a linear interpolation.

41. The method of claim 1, wherein said removing of said unnecessary line segment removes either one of two vertices constructing the unnecessary line segment; and wherein said determining of a position of said vertex determines the shift amount of the vertex which is constructing the unnecessary line segment and not removed on said removing of said unnecessary line segment.

42. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said method comprising:

evaluating a degree of importance of each line segment of said framework;

removing an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;

reconfiguring said framework to account for said removal of said line segment; and

reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment,

wherein said framework is drawn on a display apparatus.

43. The method of claim 42, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

44. The method of claim 42, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

45. The method of claim 44, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

46. The method of claim 45, wherein said interpolation is a linear interpolation.

47. The method of claim 42, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

48. The method of claim 42, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

49. The method of claim 48, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation $|(N \cdot E) \times L|$ at line segments corresponding to the boundary lines of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, " \cdot " is an inner product, and " \times " is a product.

50. The method of claim 42, wherein said image data defines a 3-dimensional polygonal framework.

51. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

52. The method of claim 51, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

53. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

54. The method of claim 53,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

55. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

56. The method of claim 55, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

57. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

58. The method of claim 57, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

59. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

60. The method of claim 59, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

61. The method of claim 42, wherein if two or more line segments are assigned an identical degree of importance, said method further comprises assigning a lowest degree of

importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

62. The method of claim 42, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

63. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

64. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

65. The method of claim 64, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

66. The method of claim 42, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

67. The method of claim 42, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

68. The method of claim 42, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

69. The method of claim 42, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

70. The method of claim 42, further comprising, generating an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

71. The method of claim 70, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

72. The method of claim 71, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

73. The method of claim 42, wherein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

74. The method of claim 42, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

75. The method of claim 42, wherein said reconfiguring said textures or pictures applied to said framework decides a new position of the corresponding point on said textures or pictures where an area change amount of said textures or pictures to be influenced by the approximation lies within a predetermined range.

76. (Amended) The method [apparatus] of claim 44, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

77. (Amended) An apparatus for use with a display device that approximates an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus [device] comprising:

a memory unit for storing said image data; and

a processor connected to said memory unit, wherein said processor is programmed to:

(a) assign an importance value to each line segment of said framework;

(b) remove from said framework that line segment having a lowest importance value;

and

(c) reconfigure said framework to account for said removal of said line segment having said lowest importance value.

78. The apparatus of claim 77, further comprising an input device inputting said image data to said processor for storage in said memory unit.

79. The apparatus of claim 78, wherein said input device comprises a floppy disk drive.

80. The apparatus of claim 78, wherein said input device comprises a magneto-optical disk drive.

81. The apparatus of claim 77, further comprising a user input device for inputting data to said processor.

82. The apparatus of claim 81, wherein said user input device comprises a keyboard.

83. The apparatus of claim 77, wherein said processor is further programmed to reconfigure texture and pictures applied to said framework to account for removal of said line segment.

84. The apparatus of claim 77, said processor, in performing said reconfiguration of said framework, is programmed to replace two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

85. The apparatus of claim 77, wherein said image data defines a 3-dimensional polygonal framework.

86. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

87. The apparatus of claim 86, said processor, in performing said assignment of importance values, is programmed to assign a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

88. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to use a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

89. The apparatus of claim 88,

wherein said processor assigns an importance value to each line segment by calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

90. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to determine an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

91. The apparatus of claim 90, wherein said processor assigns an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

92. The apparatus of claim 77, wherein said processor, in performing said assignment of importance values, assigns an importance value to each line segment based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

93. The apparatus of claim 77, wherein said processor assigns an importance value to each line segment by calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

94. The apparatus of claim 77, wherein said processor, in performing said assignment of importance values, is programmed to assign an importance value to each line segment based on a length of said line segments.

95. The apparatus of claim 77, wherein said processor assigns an importance value to each line segment in direct proportion to a length of that line segment.

96. The apparatus of claim 77, wherein if two or more line segments are assigned an identical degree of importance, said processor assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

97. The apparatus of claim 77, wherein said processor is further programmed to repeat said assignment of an importance value to each line segment; said removal of that line segment with the lowest importance value; and said reconfiguration said framework.

98. The apparatus of claim 77, wherein said processor is programmed to assign an importance value to each line segment based on an amount by which an amount of said image data is changed by removal of a particular line segment.

99. The apparatus of claim 77, wherein said processor is programmed to assign an importance value to each line segment based on importance values assigned by a user to one or more of said line segments.

100. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework containing said new vertex and in which said lowest-importance-value line segment is removed is minimized.

101. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a new vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said new vertex.

102. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

103. The apparatus of claim 77, wherein said processor is programmed to generate an intermediate configuration of said image data by decreasing a length of said lowest-importance-value line segment.

104. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by generating a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

105. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:

assigning an importance value to each line segment of said framework;

removing from said framework that line segment having a lowest importance value;

and

reconfiguring said framework to account for said removal of said line segment having said lowest importance value,

wherein said framework is drawn on a display apparatus.

106. The method of claim 105, wherein said reconfiguring further comprises replacing two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

107. The method of claim 105, wherein said image data defines a 3-dimensional polygonal framework.

108. The method of claim 105, wherein said assigning an importance value to each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

109. The method of claim 108, wherein said assigning an importance value to each line segment further comprises assigning a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

110. The method of claim 105, wherein said assigning an importance value to each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

111. The method of claim 110,

wherein said assigning an importance value to each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

112. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

113. The method of claim 112, wherein said assigning an importance value to each line segment further comprises assigning an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

114. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

115. The method of claim 114, wherein said assigning an importance value to each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

116. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on a length of said line segments.

117. The method of claim 116, wherein said assigning an importance value to each of said line segments further comprises assigning an importance value to each line segment in direct proportion to a length of that line segment.

118. The method of claim 105, wherein if two or more line segments are assigned an identical degree of importance, said method further comprises assigning a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

119. The method of claim 105, further comprising repeating said steps of assigning an importance value to each line segment; removing that line segment with the lowest importance value; and

reconfiguring said framework.

120. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

121. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on importance values assigned by a user to one or more of said line segments.

122. The method of claim 121, further comprising specifying one or more of said line segments as of high importance, wherein assigning an importance value to each line segment further comprises preventing said one or more high importance line segments from being removed.

123. The method of claim 105, wherein said reconfiguring comprises positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework comprising said new vertex and in which said lowest-importance-value line segment is removed is minimized.

124. The method of claim 105, wherein said reconfiguring comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said vertex.

125. The method of claim 105, wherein said reconfiguring comprises positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

126. The method of claim 105, further comprising, generating an intermediate configuration of said image data by decreasing a length of said lowest-importance-value line segment prior to said step of removing said lowest-importance-value line segment.

127. The method of claim 105, further comprising, generating an intermediate polygonal framework between an original framework including said lowest-importance-value line segment and a new reconfigured framework with said lowest-importance-value line segment removed.

128. The method of claim 127, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a new vertex position determined in said step of reconfiguring.

129. The method of claim 128, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said new vertex position determined in said step of reconfiguring.

130. The method of claim 105, further comprising reconfiguring a texture applied to said framework to account for said removing of said lowest-importance-value line segment.

131. The method of claim 105, wherein said assigning an importance value to each line segment is done in accordance with an assigned importance value of line segments contiguous to a particular line segment being evaluated.

132. The method of claim 105, wherein said reconfiguring comprises using a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

133. The method of claim 105, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said change amount of said volume is small.

134. The method of claim 105, wherein said assigning an importance value to each line segment is performed on the basis of a vector which is representing said line segment, an area of a plane of said image data which is composed by at least one of said vertices of said line segment, and a normal vector at said plane.

135. The method of claim 105, wherein said assigning an importance value to each line segment is performed on the basis of a change amount of area of the image specified by said image data when said line segment is removed.

136. The method of claim 135, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said change amount of said area is small.

137. The method of claim 105, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said length of said line segment is short.

138. The method of claim 105, wherein when two or more edges are assigned an identical degree of importance, a shortest line segment of said line segments receiving an identical degree of importance is said unnecessary edge.

139. The method of claim 105, further comprising repeating the step of said evaluating a degree of importance of the line segment, the step of said removing said

unnecessary line segment, and the step of said determining said position of said vertex after said unnecessary line segment is removed.

140. The method of claim 105, wherein said evaluating a degree of said line segment is performed on the basis of a removal importance value of the line segment obtained from a change amount of said image data caused by the removing of said line segment and on the basis of an assigned importance value of the line segment assigned by a user.

141. The method of claim 140, wherein said evaluating a degree of importance of the line segment decides that the degree of importance of said line segment is small, if said removal importance value and said assigned importance value are both small.

142. The method of claim 140, wherein said assigned importance value is a removing order of said line segments.

143. The method of claim 105, further comprising specifying at least one said line segment as of high importance, wherein said evaluating a degree of importance of said at least one line segment further comprises preventing said at least one high importance line segment from being designated as said unnecessary line segment.

144. The method of claim 143, wherein said specifying the at least one line segment as of high importance is performed by a user.

145. The method of claim 143, wherein said specifying the at least one line segment as of high importance specifies a portion where more than two image data are adjacent.

146. The method of claim 105, wherein said vertex is decided at a position where a total loss of area between the original framework which is the framework before line segment removing and the reconfigured framework which is the framework after said line segment removing is minimized.

147. The method of claim 146, wherein when the shape of the portion where said removal line segment is a concave or convex shape, said vertex is decided at a position where a total loss of area between said original framework and said reconfigured framework is minimized.

148. The method of claim 105, wherein said vertex is decided at a position where a loss of area between the original framework which is the framework before line segment removing and the reconfigured framework which is the framework after line segment removing is equal on both sides of said vertex.

149. The method of claim 148, wherein when the shape of the portion where said removal line segment is a S-character shape, said vertex is arranged at a position where a loss of area between said original framework and said reconfigured framework is equal on both sides of said vertex.

150. The method of claim 105, wherein said determining a position of said vertex determines the vertex at a position of one of the vertices of the removal line segment.

151. The method of claim 105, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment.

152. The method of claim 105, further comprising, generating an framework at intermediate layer between said original framework which is the framework before line segment removing and said reconfigured framework which is the framework after line segment removing by determining a position of vertices in the intermediate layer on the basis of the relation of vertices position between said original framework and said reconfigured framework.

153. The method of claim 105, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

154. The method of claim 105, wherein said evaluation of degree of importance of the line segment is performed on the basis of an evaluation value of said line segment and evaluation values of peripheral line segments.

155. The method of claim 105, wherein said removing of unnecessary line segment removes either one or two vertices constructing the unnecessary line segment; and

said determining of a position of vertex determines amount of shift the vertex which is constructing the unnecessary line segment and not removed on said removing of unnecessary line segment.

156. (Amended) An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising:

a memory unit configured to store said image data; and

a processing apparatus configured to: [for:]

[evaluating] evaluate a degree of importance of each line segment of said framework;

[removing] remove at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

[determining] determine a position of a vertex after said unnecessary line segment is removed.

157. The apparatus of claim 156, wherein said image data defines a 3-dimensional polygonal framework.

158. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

159. The apparatus of claim 158, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

160. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

161. The apparatus of claim 160,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

162. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

163. The apparatus of claim 162, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

164. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

165. The apparatus of claim 164, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

166. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

167. The apparatus of claim 166, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

168. The apparatus of claim 156, wherein if two or more line segments are assigned an identical degree of importance, said processing apparatus assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

169. The apparatus of claim 156, wherein said processing apparatus repeats said evaluating a degree of importance of each line segment; said removing an unnecessary line segment; and said determining a position of a vertex after said unnecessary line segment is removed.

170. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

171. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

172. The apparatus of claim 171, said processing apparatus specifies one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

173. The apparatus of claim 156, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

174. The apparatus of claim 156, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

175. The apparatus of claim 156, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

176. The apparatus of claim 156, said processing apparatus generates an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

177. The apparatus of claim 156, said processing apparatus generates an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

178. The apparatus of claim 177, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

179. The apparatus of claim 178, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

180. The apparatus of claim 156, said processing apparatus reconfigures a texture applied to said framework to account for said removing of said unnecessary line segment.

181. The apparatus of claim 156, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

182. The apparatus of claim 156, said processing apparatus reconfigures said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said step of determining a position of a vertex.

183. The apparatus of claim 182, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

184. (Amended) An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said apparatus comprising:

a memory unit configured to store said image data; and

a processing apparatus configured to: [for:]

[evaluating] evaluate a degree of importance of each line segment of said framework;

[removing] remove an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;

[reconfiguring] reconfigure said framework to account for said removal of said line segment; and

[reconfiguring] reconfigure said textures or pictures applied to said framework to account for said removal of said line segment.

185. The apparatus of claim 184, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

186. The apparatus of claim 184, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

187. The apparatus of claim 186, wherein said interpolation is a linear interpolation.

188. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

189. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

190. The apparatus of claim 189, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation

$| (N \cdot E) \times L |$ at line segments corresponding to the boundary lines of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, " \cdot " is a inner product, and " \times " is a product.

191. The apparatus of claim 184, wherein said image data defines a 3-dimensional polygonal framework.

192. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

193. The apparatus of claim 192, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

194. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

195. The apparatus of claim 194,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

196. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

197. The apparatus of claim 196, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

198. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

199. The apparatus of claim 198, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

200. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

201. The apparatus of claim 200, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

202. The apparatus of claim 184, wherein if two or more line segments are assigned an identical degree of importance, said processing apparatus assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

203. The apparatus of claim 184, said processing apparatus repeats said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

204. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

205. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

206. The apparatus of claim 205, said processing apparatus specifies one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

207. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

208. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

209. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

210. The apparatus of claim 184, said processing apparatus generates an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

211. The apparatus of claim 184, said processing apparatus generates an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

212. The apparatus of claim 211, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

213. The apparatus of claim 212, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

214. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

215. The apparatus of claim 184, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

216. (Amended) A medium for storing image data for approximating an image by decreasing an amount of said image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:

a memory unit [for storing] configured to store said image data, wherein said image data stored onto said memory unit are generated by a processor that:

[evaluating] evaluates a degree of importance of each line segment of said framework;

[removing] removes at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

[determining] determines a position of a vertex after said unnecessary line segment is removed.

217. The medium of claim 216, wherein said image data defines a 3-dimensional polygonal framework.

218. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

219. The medium of claim 218, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

220. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

221. The medium of claim 220,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

222. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

223. The medium of claim 222, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

224. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

225. The medium of claim 224, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

226. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

227. The medium of claim 226, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

228. The medium of claim 216, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance among said two or more line

segments is assigned to that line segment of said two or more line segments with a shortest length.

229. The medium of claim 216, further comprising repeating said evaluating a degree of importance of each line segment; said removing an unnecessary line segment; and said determining a position of a vertex after said unnecessary line segment is removed.

230. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

231. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

232. The medium of claim 231, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

233. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

234. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

235. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

236. The medium of claim 216, wherein an intermediate configuration of said image data is generated by decreasing a length of said unnecessary line segment prior to said removing said unnecessary line segment.

237. The medium of claim 216, wherein an intermediate polygonal framework is generated between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

238. The medium of claim 237, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

239. The medium of claim 238, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

240. The medium of claim 216, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

241. The medium of claim 216, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

242. The medium of claim 216, further comprising reconfiguring said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said determining a position of a vertex.

243. The medium of claim 242, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

244. (Amended) A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:

a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by a processor that:

[assigning] assigns an importance value to each line segment of said framework;

[removing] removes from said framework that line segment having a lowest importance value; and

[reconfiguring] reconfigures said framework to account for said removal of said line segment having said lowest importance value.

245. The medium of claim 244, wherein said reconfiguring further comprises replacing two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

246. The medium of claim 244, wherein said image data defines a 3-dimensional polygonal framework.

247. The medium of claim 244, wherein said assigning an importance value to each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

248. The medium of claim 247, wherein said assigning an importance value to each line segment further comprises assigning a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

249. The medium of claim 244, wherein said assigning an importance value to each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

250. The medium of claim 249,

wherein said assigning an importance value to each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

251. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

252. The medium of claim 251, wherein said assigning an importance value to each line segment further comprises assigning an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

253. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

254. The medium of claim 252, wherein said assigning an importance value to each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

255. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on a length of said line segments.

256. The medium of claim 255, wherein said assigning an importance value to each of said line segments further comprises assigning an importance value to each line segment in direct proportion to a length of that line segment.

257. The medium of claim 244, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance is assigned among said two or more line segments to that line segment of said two or more line segments with a shortest length.

258. The medium of claim 244, further comprising repeating said steps of assigning an importance value to each line segment; removing that line segment with the lowest importance value; and reconfiguring said framework.

259. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

260. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on importance values assigned by a user to one or more of said line segments.

261. The medium of claim 260, further comprising specifying one or more of said line segments as of high importance, wherein assigning an importance value to each line segment further comprises preventing said one or more high importance line segments from being removed.

262. The medium of claim 244, wherein said reconfiguring comprises positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework comprising said new vertex and in which said lowest-importance-value line segment is removed is minimized.

263. The medium of claim 244, wherein said reconfiguring comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said vertex.

264. The medium of claim 244, wherein said reconfiguring comprises positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

265. The medium of claim 244, wherein an intermediate configuration of said image data is generated by decreasing a length of said lowest-importance-value line segment prior to said removing said lowest-importance-value line segment.

266. The medium of claim 244, wherein an intermediate polygonal framework is generated between an original framework including said lowest-importance-value line segment and a new reconfigured framework with said lowest-importance-value line segment removed.

267. The medium of claim 266, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a new vertex position determined in said reconfiguring.

268. The medium of claim 267, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said new vertex position determined in said reconfiguring.

269. The medium of claim 244, wherein a texture applied to said framework is reconfigured to account for said removing of said lowest-importance-value line segment.

270. The medium of claim 244, wherein said assigning an importance value to each line segment is done in accordance with an assigned importance value of line segments contiguous to a particular line segment being evaluated.

271. The medium of claim 244, wherein said reconfiguring comprises using a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

272. (Amended) A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said medium comprising:

a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by a processor for:

evaluating a degree of importance of each line segment of said framework;

removing an unnecessary line segment identified by said evaluating a degree of importance of each line segment;

reconfiguring said framework to account for said removal of said line segment; and

reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment.

273. The medium of claim 272, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

274. The medium of claim 272, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

275. The medium of claim 274, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

276. The medium of claim 275, wherein said interpolation is a linear interpolation.

277. The medium of claim 272, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

278. The medium of claim 272, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary

line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

279. The medium of claim 278, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation

$| (N \cdot E) \times L |$ at line segments corresponding to the boundary lines of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, " \cdot " is an inner product, and " \times " is a product.

280. The medium of claim 272, wherein said image data defines a 3-dimensional polygonal framework.

281. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

282. The medium of claim 281, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

283. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an

area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

284. The medium of claim 283,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

285. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

286. The medium of claim 285, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

287. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

288. The medium of claim 287, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein " $|E|$ " is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

289. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

290. The medium of claim 289, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

291. The medium of claim 272, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance is assigned among said two or more line segments to that line segment of said two or more line segments with a shortest length.

292. The medium of claim 272, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

293. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

294. The medium of claim 272, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

295. The medium of claim 294, one or more of said line segments is specified as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

296. The medium of claim 272, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

297. The medium of claim 272, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

298. The medium of claim 272, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

299. The medium of claim 272, wherein an intermediate configuration of said image data is generated by decreasing a length of said unnecessary line segment prior to said removing said unnecessary line segment.

300. The medium of claim 272, wherein an intermediate polygonal framework between an original framework is generated to include said unnecessary line segment and a new framework with said unnecessary line segment removed.

301. The medium of claim 300, wherein said generating an intermediate framework comprises locating a vertex at a position intermediate to a vertex position in said original framework and a vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

302. The medium of claim 301, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

303. (Amended) The medium of claim 272, [wherein] wherein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

304. The medium of claim 272, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

305. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising the steps of:

evaluating line segments of said framework;

identifying at least one line segment from said framework which is identified based on said evaluation of the line segments;

integrating vertices connected by the identified line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex; and

assigning a weight which is considered in the evaluating step or the identifying step to reflect a user's intention in the approximated image,

wherein said framework is drawn on a display apparatus.

306. The method of claim 305, further comprising the steps of:

storing data relating to said integrated vertices; and

using the stored data for forming a model finer than the approximated image.

307. (Twice Amended) A method for creating data which comprises approximated image data formed by decreasing an amount of original image data, wherein said approximated and original image data define a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising the steps of:

causing a processor to form ~~ing~~ said approximated image data from said original image data,

wherein the processor forms said approximated image data by executing the steps of: ~~forming step comprises:~~

evaluating line segments of said framework;

identifying at least one line segment from said framework which is identified based on said evaluation of the line segments;

integrating vertices connected by the identified line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex; and

storing said approximated image data. ~~in a memory unit.~~

308. (Amended) The method of claim 307, further comprising the step of storing data relating said vertices integrated to said ~~new~~-integrated vertex for use in forming a model finer than said approximated image data by using the stored data relating to said vertices.

309. The method of claim 308, further comprising the step of assigning a weight which is considered in the evaluating step or the identifying step to reflect a user's intention in the approximated image.

310. A method of forming a finer model from the data created by the method of claim 308, wherein the finer model is formed by using said approximated image data and said data relating said vertices integrated to said new vertex.

311. (Twice Amended) A method of forming finer model from image data created by an approximated image data creation, wherein:

(a) the image data created by said approximated image data creation comprising approximated image data formed by decreasing an amount of original image data, wherein said original image data defines a polygonal framework, said framework being composed of line segments drawn between vertices; and

(b) said approximated image data creation comprising:

(b-1) forming said approximated image data from said original image data, the step (b-1) being executed by a processor, wherein the step (b-1) of forming said approximated image data comprises:

(b-1-1) evaluating line segments of said framework;

(b-1-2) identifying at least one line segment from said framework which is identified based on said evaluation of each line segments;

(b-1-3) integrating vertices connected by the identified at least one line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex;

(b-2) storing said approximated image data; and

(b-3) storing additional data relating integration of said vertices to said integrated vertex for use in forming a model finer than said approximated image data;

said method comprising the steps of:

(c) forming the finer model by using said approximated image data and said additional data, the step (c) of forming the finer model comprises:

(c-1) creating at least two vertices comprised in said finer model from said integrated vertex by using data included in said additional data.

312. A forming method of claim 311, wherein

said forming step (c) further comprising:

(c-2) allotting a texture to a face created by said creating step (c-1) of said two vertices.

313. A forming method of claim 311, wherein

said finer model having one or more vertices and two or more faces than does said approximated image data.

314. A forming method of claim 311, wherein

said polygonal framework being represented using triangle meshes.

315. (Amended) A forming method of claim 311, wherein

said identifying step (b-1-2) and said integrating step (b-1-3) are repeated in said approximated image data creation so that said approximated data have a desired resolution.

316. A forming method of claim 311, wherein

said additional data comprises information of integration relations of said integrated vertex and deleted vertices in said original image data.

317. A forming method of claim 311, wherein

in said creating step (c-1),

one of said two vertices is created by modifying the position of said integrated vertex based on information comprised in said additional data, and

the other is created by modifying the position of said integrated vertex based on information comprised in said additional data.

318. A forming method of claim 311, wherein

a plurality of said finer image data can be formed from said approximated image data, wherein

one of the finer image data has resolution which is different from resolution of another of the finer image data.

319. A forming method of claim 311, wherein

in said forming step (c), the creating step (c-1) for creating of said two vertices comprised in said finer model is repeated in order to be executed on a plurality of integrated vertices of said approximated image data.

320. A forming method of claim 311 wherein, in said integrating step (b-1-3), two vertices connected by the identified line segment are integrated to a single integrated vertex.

321. A forming method of claim 311 wherein, in said integrating step (b-1-3), the integration is performed by removing one of said vertices from and keeping the other one of said vertices in the model of said approximated image data.

322. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a numerical measure is used in the line segment evaluation.

323. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a value relating normal of plane is used in the line segment evaluation.

324. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a length of vector is used in each of the line segment evaluation.

325. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:

(c-2) receiving said approximated image data stored in an external storing device for utilizing the approximated image data in the vertices creating step (c-1), and

(c-3) displaying the formed finer model on a local display.

326. (Amended) A forming method of claim 311 ~~307~~ wherein, the forming step (c) further comprising steps of:

(c-4) receiving said additional data stored in an external storing device for utilizing the additional data in the vertices creating step (c-1), and

(c-5) displaying the formed finer model on a local display.

327. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:

(c-6) receiving said approximated image data and said additional data stored in an external storing device for utilizing the approximated image data and the additional data in the vertices creating step (c-1);

(c-7) displaying the formed finer model on a local display.

328. A forming method of claim 311 wherein, in said integrating step (b-1-3), two vertices connected by the identified line segment are integrated to a single integrated vertex.

329. A forming method of claim 311 wherein, in said integrating step (b-1-3), the integration is performed by removing one of said vertices from and keeping the other one of said vertices in the model of said approximated image data.

330. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a numerical measure is used in the line segment evaluation.

331. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a value relating normal of plane is used in the line segment evaluation.

332. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a length of vector is used in each of the line segment evaluation.

333. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:

(c-2) receiving said approximated image data stored in an external storing device for utilizing the approximated image data in the vertices creating step (c-1); and

(c-3) displaying the formed finer model on a local display.

334. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:

(c-4) receiving said additional data stored in an external storing device for utilizing the additional data in the vertices creating step (c-1); and

(c-5) displaying the formed finer model on a local display.

335. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:

(c-6) receiving said approximated image data and said additional data stored in an external storing device for utilizing the approximated image data and the additional data in the vertices creating step (c-1);

(c-7) displaying the formed finer model on a local display.

336. (Amended) An apparatus of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising a processor and storing instructions which when executed by the processor executes the steps of: ~~comprising modules of:~~

evaluating line segments of said framework;

identifying at least one line segment from said framework which is identified based on said evaluation of line segment;

integrating vertices connected by the identified line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex; and

assigning a weight which is considered in the evaluating step or the identifying step to reflect a user's intention in the approximated image.

337. (Amended) An apparatus for creating data which comprises approximated image data formed by decreasing an amount of original image data, wherein said approximated and original image data define a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising a processor and storing instructions which when executed by the processor executes the steps of: ~~comprising modules of:~~

forming said approximated image data from said original image data, wherein the forming step comprises:

evaluating each line segment of said framework;

identifying at least one line segment from said framework which is identified based on said evaluation of each line segment; and

integrating vertices connected by the identified line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex; and

storing said approximated image data.

338. (Amended) An apparatus of forming finer model from image data created by an approximated image data creation, wherein:

(a) the image data created by said approximated image data creation comprising approximated image data formed by decreasing an amount of original image data, wherein said original image data defines a polygonal framework, said framework being composed of line segments drawn between vertices; and

(b) said approximated image data creation comprising:

(b-1) forming said approximated image data from said original image data, wherein the step (b-1) of forming said approximated image data comprises:

(b-1-1) evaluating line segments of said framework;

(b-1-2) identifying at least one line segment from said framework which is identified based on said evaluation of line segments;

(b-1-3) integrating vertices connected by the identified at least one line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex;

(b-2) storing said approximated image data; and

(b-3) storing additional data relating integration of said vertices to said integrated vertex for use in forming a model finer than said approximated image data;

said apparatus comprising a processor, and instructions stored within memory of said apparatus which when executed perform the steps of: ~~comprising modules of:~~

(c) forming the finer model by using said approximated image data and said additional data, the step (c) of forming the finer model comprises:

(c-1) creating at least two vertices comprised in said finer model from said integrated vertex by using data included in said additional data.

STATUS OF THE CLAIMS

The following statement of the status and support for all changes to the claims in this reissue application is provided to comply with 37 C.F.R. §1.173(c) and to facilitate consideration of this reissue application.

Claim 1 was amended by the Amendment of June 9, 2009 to provide for a display apparatus. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 2-14 were issued in the original patent, and remain pending in this reissue application.

Claim 15 has been amended by the *Preliminary Amendment And Statement Of Status/Support For All Changes To The Claims* filed on February 19, 2004. An explanation of the support in the disclosure of the patent for the changes made to claim 15 is found within the Preliminary Amendment of February 19, 2004.

Claims 16-22 were issued in the original patent, and remain pending in this reissue application.

Claim 23 has been amended by the *Preliminary Amendment And Statement Of Status/Support For All Changes To The Claims* filed on February 19, 2004. An explanation of the support in the disclosure of the patent for the changes made to claim 23 is found within the Amendment of February 19, 2004.

Claims 24-41 were issued in the original patent, and remain pending in this reissue application.

Claim 42 was amended in the Amendment of June 9, 2009 to provide for a display apparatus. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 43-75 were issued in the original patent, and remain pending in this reissue application.

Claim 76 has been amended by the *Preliminary Amendment And Statement Of Status/Support For All Changes To The Claims* filed on February 19, 2004. An explanation of the support in the disclosure of the patent for the changes made to claim 76 is found within the Preliminary Amendment of February 19, 2004.

Claim 77 was amended by the Amendment of June 9, 2009 to change a "device" to an -- apparatus --. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 78-104 were issued in the original patent, and remain pending in this reissue application.

Claim 105 was amended by the Amendment of June 9, 2009 to provide for a display apparatus. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 106-154 were issued in the original patent, and remain pending in this reissue application.

Claim 155 was amended by the Certificate of Correction of October 14, 2003, and remains pending in this reissue application. Where a certificate of correction has issued for the patent, an amendment in the reissue application must be presented as if the changes made to the original patent text via the certificate of correction are a part of the original patent. M.P.E.P. §1453.

Claim 156 was amended by the Amendment of June 9, 2009 to provide for a memory unit. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 157-183 were issued in the original patent, and remain pending in this reissue application.

Claim 184 was amended by the Amendment of June 9, 2009 to provide for a memory unit. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 185-215 were issued in the original patent, and remain pending in this reissue application.

Claim 216 was amended by the Amendment of June 9, 2009 to include a processor. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 217-243 were issued in the original patent, and remain pending in this reissue application.

Claim 244 was amended by the Amendment of June 9, 2009 to include a processor. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 245-271 were issued in the original patent, and remain pending in this reissue application.

Claim 272 was amended by the Amendment of June 9, 2009 to include a processor. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 273-278 were issued in the original patent, and remain pending in this reissue application.

Claim 279 was amended by the Certificate of Correction of October 14, 2003, and remains pending in this reissue application. Where a certificate of correction has issued for the patent, an amendment in the reissue application must be presented as if the changes made to the original patent text via the certificate of correction are a part of the original patent. M.P.E.P. §1453.

Claims 280-301 were issued in the original patent, and remain pending in this reissue application.

Claim 302 was amended by the Certificate of Correction of October 14, 2003, and remains pending in this reissue application. Where a certificate of correction has issued for the patent, an amendment in the reissue application must be presented as if the changes made to the original patent text via the certificate of correction are a part of the original patent. M.P.E.P. §1453.

Claim 303 was amended by the *Amendment For Filing With Request For Continued Examination (RCE) Under 37 C.F.R. §1.114* filed on November 21, 2005 to correct a typographical rejection in that claim.

Claim 304 was issued in the original patent, and remains pending in this reissue application.

Claim 305 has been amended by the Amendment of June 9, 2009 to claim additional subject matter to which the Applicants are believed to be entitled. This claim is broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claim 306 has been added by the *Preliminary Amendment And Statement Of Status/Support For All Changes To The Claims* filed on February 19, 2004. An explanation of the support in the disclosure of the patent is found within the Amendment of February 19, 2004.

Claim 307-308 have been amended by this Amendment to claim additional subject matter to which the Applicants are believed to be entitled. This claim is broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided below.

Claims 309-310 have been added by the *Preliminary Amendment And Statement Of Status/Support For All Changes To The Claims* filed on February 19, 2004. An explanation of the support in the disclosure of the patent is found within the Amendment of February 19, 2004.

Claim 311 has been amended by this Amendment to claim additional subject matter to which the Applicants are believed to be entitled. This claim is broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided below.

Claims 312-314 have been added by the Amendment of July 6, 2006 to claim additional subject matter to which the Applicants are believed to be entitled. These claims are broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of July 6, 2006.

Claim 315 has been amended by the Amendment of June 9, 2009 to claim additional subject matter to which the Applicants are believed to be entitled. This claim is broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 316-319 have been added by the Amendment of July 6, 2006 to claim additional subject matter to which the Applicants are believed to be entitled. These claims are broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of July 6, 2006.

Claims 320-325 have been added by the Amendment of June 9, 2009 to claim additional subject matter to which the Applicants are believed to be entitled. These claims are broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claim 326 has been amended by this Amendment to claim additional subject matter to which the Applicants are believed to be entitled. This claim is broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided below.

Claims 327-335 have been added by the Amendment of June 9, 2009 to claim additional subject matter to which the Applicants are believed to be entitled. These claims are broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided in the Amendment of June 9, 2009.

Claims 336-338 have been added by this Amendment to claim additional subject matter to which the Applicants are believed to be entitled. These claims are broader in some aspects, and narrower in some aspects, as compared to the issued claims of the '952 patent. An explanation of the support in the disclosure of the patent is provided below.

SUPPORT FOR ALL CHANGES TO THE CLAIMS

An explanation of the support in the disclosure of the patent for each element of the amended claims and the new claims is provided in the following chart:

Claim 1	Support in '952 Patent for Claim Changes
1. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:	
evaluating a degree of importance of each line segment of said framework;	Claim 1
removing at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and	Claim 1
determining a position of a vertex after said unnecessary line segment is removed,	Claim 1
wherein said framework is drawn on a display apparatus.	Column 4, line 58, column 5, line 48, column 11, line 48

Claim 42	Support in '952 Patent for Claim Changes
42. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said method comprising:	
evaluating a degree of importance of each line segment of said framework;	Claim 42
removing an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;	Claim 42
reconfiguring said framework to account for said removal of said line segment; and	Claim 42
reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment,	Claim 42
wherein said framework is drawn on a display apparatus.	Column 4, line 58, column 5, line 48, column 11, line 48

Claim 77	Support in '952 Patent for Claim Changes
77. (Amended) An apparatus for use with a display device that approximates an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising:	Column 19, line 65
a memory unit for storing said image data; and	Claim 77
a processor connected to said memory unit, wherein said processor is programmed to:	Claim 77
(a) assign an importance value to each line segment of said framework;	Claim 77
(b) remove from said framework that line segment having a lowest importance value; and	Claim 77
(c) reconfigure said framework to account for said removal of said line segment having said lowest importance value.	Claim 77

Claim 105	Support in '952 Patent for Claim Changes
105. (Amended) A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:	
assigning an importance value to each line segment of said framework;	
removing from said framework that line segment having a lowest importance value; and	
reconfiguring said framework to account for said removal of said line segment having said lowest importance value,	
wherein said framework is drawn on a display apparatus.	Column 4, line 58, column 5, line 48, column 11, line 48

Claim 156	Support in '952 Patent for Claim Changes
156. (Amended) An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising:	
a memory unit configured to store said image data; and	Figure 1
a processing apparatus configured to:	Figures 1 and 2; column 4, line 55
evaluate a degree of importance of each line segment of said framework;	Figures 1 and 2; column 5, lines 17-24
remove at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and	Figures 1 and 2; column 5, lines 24-26
determine a position of a vertex after said unnecessary line segment is removed.	Figures 1 and 2; column 5, lines 29-31

Claim 184	Support in '952 Patent for Claim Changes
184. (Amended) An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said apparatus comprising:	
a memory unit configured to store said image data; and	Figure 1
a processing apparatus configured to:	Figure 1
evaluate a degree of importance of each line segment of said framework;	Figures 1 and 2; column 5, lines 17-24
remove an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;	Figures 1 and 2; column 5, lines 24-26
reconfigure said framework to account for said removal of said line segment; and	Figures 1 and 2; column 5, lines 29-31
reconfigure said textures or pictures applied to said framework to account for said removal of said line segment.	Figures 1 and 2; column 5, lines 34-43

Claim 216	Support in '952 Patent for Claim Changes
216. A medium for storing image data for approximating an image by decreasing an amount of said image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:	
a memory unit configured to store said image data, wherein said image data stored onto said memory unit are generated by a processor that:	Figures 1 and 2; column 5, lines 44-54
evaluates a degree of importance of each line segment of said framework;	Figures 1 and 2; column 5, lines 17-24
removes at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and	Figures 1 and 2; column 5, lines 24-26
determines a position of a vertex after said unnecessary line segment is removed.	Figures 1 and 2; column 5, lines 29-31

Claim 244	Support in '952 Patent for Claim Changes
244. A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:	
a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by a processor that:	Figures 1 and 2; column 5, lines 44-54
assigns an importance value to each line segment of said framework;	Figures 1 and 2; column 5, lines 17-24
removes from said framework that line segment having a lowest importance value; and	Figures 1 and 2; column 5, lines 24-26
reconfigures said framework to account for said removal of said line segment having said lowest importance value.	Figures 1 and 2; column 5, lines 29-31

Claim 272	Support in '952 Patent for Claim Changes
272. A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said medium comprising:	
a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by a processor for:	Figures 1 and 2; column 5, lines 44-54
a evaluating a degree of importance of each line segment of said framework;	Figures 1 and 2; column 5, lines 17-24
a unit removing an unnecessary line segment identified by said evaluating a degree of importance of each line segment;	Figures 1 and 2; column 5, lines 24-26
a unit reconfiguring said framework to account for said removal of said line segment; and	Figures 1 and 2; column 5, lines 24-26
a unit reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment.	Figures 1 and 2; column 5, lines 29-31

Claim 305	Support in '952 Patent for Claim Changes
305. A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising the steps of:	Figure 1
evaluating line segments of said framework;	Column 5, lines 17-18
identifying at least one line segment from said framework which is identified based on said evaluation of the line segments;	Column 5, lines 21-23
integrating vertices connected by the identified line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex; and	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
assigning a weight which is considered in the evaluating step or the identifying step to reflect a user's intention in the approximated image.	Column 7, lines 18-30
wherein said framework is drawn on a display apparatus.	

Claim 307	Support in '952 Patent for Claim Changes
307. A method for creating data which comprises approximated image data formed by decreasing an amount of original image data, wherein said approximated and original image data define a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising the steps of:	
causing a processor to form said approximated image data from said original image data, wherein the processor forms said approximated image data by executing the steps of:	Figure 1; Column 5, lines 55-56
evaluating line segments of said framework;	Column 5, lines 17-18
identifying at least one line segment from said framework which is identified based on said evaluation of the line segments;	Column 5, lines 21-23
integrating vertices connected by the identified line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex; and	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
storing said approximated image data.	Column 5, lines 48-54; Column 11, lines 43-45

Claim 308	Support in '952 Patent for Claim Changes
308. The method of claim 307, further comprising the step of storing data relating said vertices integrated to said integrated vertex for use in forming a model finer than said approximated image data by using the stored data relating to said vertices.	Figures 7A;7B; Column 5, lines 48-54

Claim 311	Support in '952 Patent for Claim Changes
311. A method of forming finer model from image data created by an approximated image data creation, wherein:	
(a) the image data created by said approximated image data creation comprising approximated image data formed by decreasing an amount of original image data, wherein said original image data defines a polygonal framework, said framework being composed of line segments drawn between vertices; and	Figures 7A;7B
(b) said approximated image data creation comprising:	
(b-1) forming said approximated image data from said original image data, the step (b-1) being executed by a processor, wherein the step (b-1) of forming said approximated image data comprises:	Figure 1; Column 5, lines 55-56
(b-1-1) evaluating line segments of said framework;	Column 5, lines 17-18
(b-1-2) identifying at least one line segment from said framework which is identified based on said evaluation of each line segments;	Column 5, lines 21-23

Claim 311 (Cont')	Support in '952 Patent for Claim Changes
(b-1-3) integrating vertices connected by the identified at least one line segment to an integrated vertex, a position of the integrated vertex being determined based on at least location information of one of the vertices integrated to the integrated vertex;	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
(b-2) storing said approximated image data; and	Column 11, lines 43-45
(b-3) storing additional data relating integration of said vertices to said integrated vertex for use in forming a model finer than said approximated image data;	Column 5, lines 48-54; Column 11, lines 43-45
said method comprising the steps of:	
(c) forming the finer model by using said approximated image data and said additional data, the step (c) of forming the finer model comprises:	Figures 7A;7B; Column 9, lines 48-61
(c-1) creating at least two vertices comprised in said finer model from said integrated vertex by using data included in said additional data.	Figures 7A;7B; Column 9, lines 48-61

Claim 315	Support in '952 Patent for Claim Changes
315. A forming method of claim 311, wherein	
said identifying step (b-1-2) and said integrating step (b-1-3) are repeated in said approximated image data creation so that said approximated data have a desired resolution.	Column 5, lines 35-43

Claim 320	Support in '952 Patent for Claim Changes
320. A forming method of claim 311 wherein, in said integrating step (b-1-3), two vertices connected by the identified line segment are integrated to a single integrated vertex.	Column 12, lines 4-15
Claim 321	Support in '952 Patent for Claim Changes
321. A forming method of claim 311 wherein, in said integrating step (b-1-3), the integration is performed by removing one of said vertices from and keeping the other one of said vertices in the model of said approximated image data.	Column 9, lines 12-14
Claim 322	Support in '952 Patent for Claim Changes
322. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a numerical measure is used in the line segment evaluation.	Column 9, lines 12-14
Claim 323	Support in '952 Patent for Claim Changes
323. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a value relating normal of plane is used in the line segment evaluation.	Column 6, lines 23-31

Claim 324	Support in '952 Patent for Claim Changes
324. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a length of vector is used in each of the line segment evaluation.	Column 6, lines 23-31

Claim 325	Support in '952 Patent for Claim Changes
325. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-2) receiving said approximated image data stored in an external storing device for utilizing the approximated image data in the vertices creating step (c-1), and	Column 5, lines 44-54; Column 11, lines 43-55
(c-3) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 326	Support in '952 Patent for Claim Changes
326. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-4) receiving said additional data stored in an external storing device for utilizing the additional data in the vertices creating step (c-1), and	Column 5, lines 44-54; Column 11, lines 43-55
(c-5) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 327	Support in '952 Patent for Claim Changes
327. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-6) receiving said approximated image data and said additional data stored in an external storing device for utilizing the approximated image data and the additional data in the vertices creating step (c-1);	Column 5, lines 44-54; Column 11, lines 43-55
(c-7) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 328	Support in '952 Patent for Claim Changes
328. A forming method of claim 311 wherein, in said integrating step (b-1-3), two vertices connected by the identified line segment are integrated to a single integrated vertex.	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61

Claim 329	Support in '952 Patent for Claim Changes
329. A forming method of claim 311 wherein, in said integrating step (b-1-3), the integration is performed by removing one of said vertices from and keeping the other one of said vertices in the model of said approximated image data.	Column 12, lines 28-41

Claim 330	Support in '952 Patent for Claim Changes
330. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a numerical measure is used in the line segment evaluation.	Column 9, lines 12-14

Claim 331	Support in '952 Patent for Claim Changes
331. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a value relating normal of plane is used in the line segment evaluation.	Column 6, lines 23-31

Claim 332	Support in '952 Patent for Claim Changes
332. A forming method of claim 311 wherein, in the evaluating step (b-1-1), a length of vector is used in each of the line segment evaluation.	Column 6, lines 23-31

Claim 333	Support in '952 Patent for Claim Changes
333. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-2) receiving said approximated image data stored in an external storing device for utilizing the approximated image data in the vertices creating step (c-1); and	Column 5, lines 44-54; Column 11, lines 43-55
(c-3) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 334	Support in '952 Patent for Claim Changes
334. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-4) receiving said additional data stored in an external storing device for utilizing the additional data in the vertices creating step (c-1); and	Column 5, lines 44-54; Column 11, lines 43-55
(c-5) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 335	Support in '952 Patent for Claim Changes
335. A forming method of claim 311 wherein, the forming step (c) further comprising steps of:	
(c-6) receiving said approximated image data and said additional data stored in an external storing device for utilizing the approximated image data and the additional data in the vertices creating step (c-1);	Column 5, lines 44-54; Column 11, lines 43-55
(c-7) displaying the formed finer model on a local display.	Column 11, lines 43-55

Claim 336	Support in '952 Patent for Claim Changes
336. An apparatus of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising a processor and storing instructions which when executed by the processor executes the steps of:	Column 5, lines 55-56
evaluating line segments of said framework;	Column 5, lines 17-18
identifying at least one line segment from said framework which is identified based on said evaluation of line segment;	Column 5, lines 21-23
integrating vertices connected by the identified line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex; and	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
assigning a weight which is considered in the evaluating step or the identifying step to reflect a user's intention in the approximated image.	Column 7, lines 18-30

Claim 337	Support in '952 Patent for Claim Changes
337. An apparatus for creating data which comprises approximated image data formed by decreasing an amount of original image data, wherein said approximated and original image data define a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising a processor and storing instructions which when executed by the processor executes the steps of:	Column 5, lines 55-56
forming said approximated image data from said original image data, wherein the forming step comprises:	
evaluating each line segment of said framework;	Column 5, lines 17-18
identifying at least one line segment from said framework which is identified based on said evaluation of each line segment; and	Column 5, lines 21-23
integrating vertices connected by the identified line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex; and	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
storing said approximated image data.	Column 5, lines 48-54; Column 11, lines 43-45

Claim 338	Support in '952 Patent for Claim Changes
338. An apparatus of forming finer model from image data created by an approximated image data creation, wherein:	
(a) the image data created by said approximated image data creation comprising approximated image data formed by decreasing an amount of original image data, wherein said original image data defines a polygonal framework, said framework being composed of line segments drawn between vertices; and	Figures 7A;7B
(b) said approximated image data creation comprising:	
(b-1) forming said approximated image data from said original image data, wherein the step (b-1) of forming said approximated image data comprises:	Figure 1
(b-1-1) evaluating line segments of said framework;	Figures 1 and 2; column 5, lines 44-54
(b-1-2) identifying at least one line segment from said framework which is identified based on said evaluation of line segments;	Column 5, lines 17-18
(b-1-3) integrating vertices connected by the identified at least one line segment to an integrated vertex, wherein a position of the integrated vertex is determined based on at least location information of one of the vertices integrated to the integrated vertex;	Figures 7A;7B; Column 5, lines 24-30; Column 9, lines 48-61
(b-2) storing said approximated image data; and	Column 11, lines 43-45
(b-3) storing additional data relating integration of said vertices to said integrated vertex for use in forming a model finer than said approximated image data;	Column 5, lines 48-54; Column 11, lines 43-45

Claim 338 (Cont')	Support in '952 Patent for Claim Changes
said apparatus comprising a processor, and instructions stored within memory of said apparatus which when executed ' perform the steps of:	Column 5, lines 55-56
(c) forming the finer model by using said approximated image data and said additional data, the step (c) of forming the finer model comprises:	Figures 7A;7B; Column 9, lines 48-61
(c-1) creating at least two vertices comprised in said finer model from said integrated vertex by using data included in said additional data.	Figures 7A;7B; Column 9, lines 48-61

In light of these amendments and the accompanying remarks, prompt and favorable examination of this reissue application is respectfully requested.